NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
(NPDES) PERMIT PROGRAM

FACT SHEET
for
NPDES Permit No. IN 0000281

| Corporate Address: | Facility Address: |
|---|---|
| United States Steel LLC | USS Gary Works |
| 600 Grant Street | One North Broadway |
| Pittsburgh, PA 15230 | Gary, Indiana 46401 |

ORGANIZATION OF FACT SHEET

## A. Receiving Waters and Use Classifications

1. Receiving Waters: Grand Calumet River
Lake Michigan
Stockton Pond

2. Use Classifications:

The Grand Calumet River is classified for full-body contact recreation; well-balanced, warm water aquatic community; and, industrial water supply. The Indiana portion of the open water of Lake Michigan is designated as salmonid waters and shall be capable of supporting a salmonid fishery. In addition, Lake Michigan is designated for full-body contact recreation and capable of supporting a well-balanced water aquatic community. Stockton Pond is classified for full body contact recreation and well-balanced, warm water aquatic community. These waterbodies are identified as waters of the state within the Great Lakes system. As such, they are subject to the water quality standards specific to Great Lakes system dischargers as found in 327 IAC 2-1.5, 327 IAC 5-1.5, and 327 IAC 5-2.

## B. Description of Facility

1. General

United States Steel (USS) - Gary Works facility is the largest fully integrated steel mill in North America, with capacity to produce over 8 million tons of raw steel per year. Intermediate and final products include coke, sinter, iron, raw steel, cast steel, plate, hot strip, cold rolled strip and coated steels.

Following are production rates reported by USS in its NPDES permit application for operations limited by 40 CFR 420, which comprises the effluent limitations guidelines for the Iron and Steel Manufacturing Point Source Category:

| | tons/day |
|---|---|
| Cokemaking | 6,350 |
| Ironmaking | 19,290 |
| Steelmaking | 25,115 |
| Vacuum Degassing | 5,922 |
| Continuous Casting | 22,467 |

| | |
|---|---|
| Hot Forming | |
| Plate | 2,797 |
| Hot Strip | 18,432 |
| Acid Pickling | |
| Sulfuric | 1,989 |
| Hydrochloric | 10,887 |
| Cold Rolling | 23,859 |
| Alkaline Cleaning | 6,373 |
| Hot Coating | |
| Galvanizing | 1,451 |

USS also operates electro-plating operations for chromium, tin and zinc plating, which are regulated by 40 CFR Part 433 - Metal Finishing Point Source Category. The production rates listed above represent the highest monthly production rate achieved over a recent five year period, prorated to a daily basis.

2. Existing Discharges

As described below, the USS Gary Works facility has a large number of process and cooling water outfalls discharging to the Grand Calumet River, Lake Michigan and Stockton Pond. These discharges are limited by a combination of 40 CFR Parts 420 and 433, ambient water quality standards adopted by the Indiana Department of Environmental Management, and a Consent Decree resulting from a federal Clean Water Act enforcement action.

Attachment I is a facility map showing the approximate locations of the active process and cooling water outfalls. Attachment II is a facility map showing the approximate locations of storm water discharge points based upon field surveys conducted by USS. Attachment III is a series of outfall schematic diagrams showing contributing sources and approximate discharge flow rates.

The outfall number, receiving water, flow and sources of water discharged are presented below for each outfall. The flow rates for Outfalls discharging to the Grand Calumet River were based upon the average flows determined for the period from January 1999 through December 2000. Flow rates to Lake Michigan were based upon the highest monthly average flow during January 1999 through December 2000. These are the time periods and flow rates that were used in the modeling and in determining water quality based effluent limitations and corresponding mass limitations for each outfall.

a. Outfall 001 - Grand Calumet River

This Outfall has been closed. It has been removed from the permit.



b. Outfall 003 - Grand Calumet River

This Outfall has been closed. Outfall 003 has been removed from the permit.

c. Outfall 004 - Grand Calumet River NA

US Steel has declared Outfall 004 as inactive. A discharge from Outfall 004 would consist entirely of storm water from the coal preparation area and would be covered under the storm water provisions in the permit.

d. Outfall 005 - Grand Calumet River 61.07 MGD

The discharge from Outfall 005 is composed of booster house condenser cooling water, primary gas cooler heat exchangers 1-6 cooling water, miscellaneous coke plant cooling water, distillation area heat exchanger cooling water, ammonia still non-contact cooling water, No. 2 boiler house steam condensate, coke plant tank farm barometric condenser, steam condensate, battery service water freeze protection, primary gas cooler heat exchangers 7&8 cooling water, and storm water runoff. In addition, this outfall receives flows from Internal Outfall 502 (coke oven gas de-sulfurization unit non-contact cooling water) and Internal Outfall 501 (treated coke plant effluent - which includes both coke plant process water and remediation groundwater).

e. Outfall 007 - Grand Calumet River

This Outfall has been closed and will be removed from the permit.

f. Outfall 010 - Grand Calumet River 1.42 MGD

The discharge from Outfall 010 is composed of air compressor non-contact cooling water, miscellaneous coke plant non-contact cooling water, batter service water freeze protection, #2 battery roof drain, storm water runoff, and discharges from Internal Outfall 508 (blast furnace recycle treatment system blowdown).

g. Outfall 015 - Grand Calumet River 1.65 MGD

The discharge from Outfall 015 is composed of No. 3 sinter plant non-contact cooling water,

PCI east non-contact cooling water, No. 3 sinter plant compressor non-contact cooling water, storm water runoff, and steam condensate. In addition this outfall receives flow from Internal Outfall 607. Internal Outfall 607 consisted of treated landfill leachate, vacuum truck, truck wash, and decant pad water.

h. Outfall 017 - Grand Calumet River 0.064 MGD

The discharge from Outfall 017 is composed of miscellaneous non-contact cooling water, steam condensate, freeze protection water, and storm water.

i. Outfall 018 - Grand Calumet River 49.85 MGD

The discharge from Outfall 018 is composed of PCI west cooling water, No. 4, 6, and 8 blast furnace shell non-contact cooling water, sinter plant non-contact cooling water, No. 1 electric power station non-contact cooling water, turbo blower boiler house cooling water and boiler blowdown, No. 4 electric power station non-contact cooling water, stock house miscellaneous steam condensate, miscellaneous air conditioner condensate, and some storm water. In addition, SOF-6 (No. 6 Sanitary Lift Station Emergency Overflow) discharges to Outfall 018 in emergency conditions only.

j. Outfall 019 - Grand Calumet River 51.75 MGD

The discharge from Outfall 019 is composed of No. 13 blast furnace shell non-contact cooling water, No. 2 Q-BOP shop miscellaneous non-contact cooling water, turbo-blower boiler house condenser non-contact cooling water, No. 4 boiler house steam condensate non-contact cooling water, No. 1 electric power station non-contact cooling water for No.1 blast furnace condenser, storm water runoff, central water treatment plant brine regenerant water, and No. 5 electric power cooling station condensate.

k. Outfall 020 - Grand Calumet River 64.38 MGD

The discharge from Outfall 020 is composed of No. 1 basic oxygen shop miscellaneous non-contact cooling water, No.1 continuous caster miscellaneous non-contact cooling water, steam condensate, and storm water runoff.

l. Outfall 021 - Grand Calumet River 0.6 MGD

The discharge from Outfall 021 is composed of air compressor non-contact cooling water,

steam condensate, and storm water runoff.

m. Outfall 023 - Grand Calumet River 0.1 MGD

The discharge from Outfall 023 is composed of the hospital and miscellaneous building air conditioning condensate, steam condensate, and storm water runoff.

n. Outfall 026 - Grand Calumet River **NA**

Outfall 026 is currently listed as inactive by US Steel. If a discharge were to occur it could consist from the following: miscellaneous building air conditioning condensate, steam condensate and storm water runoff DA#18.

o. Outfall 028/030 - Grand Calumet River 11.2 MGD and 20.7 MGD (31.9 MGD)

Discharge from Outfalls 028/030 are lagoon outfall discharges and consist of the #2 continuous caster non-contact cooling water and other miscellaneous non-contact cooling waters, #1 BOP/Q-BOP cooling tower blowdown, storm water runoff and steam condensate, 160"/210" plate mill scale pit, and slab spray cooling, and Q-BOP vacuum degasser overflow. Discharge from internal outfall 603 discharges through Outfall 028/030. Internal Outfall 603 consists of #1 BOP, vacuum degasser, Q-BOP, #2 continuous caster A/B line, #2 continuous caster C line, #1 continuous caster line.

p. Outfall 032 - Grand Calumet River 0.3 MGD

The discharge from Outfall 032 is comprised of QA miscellaneous non-contact cooling water, miscellaneous bar mill freeze protection water, steam condensate, and storm water. In addition emergency overflows from the No. 3 sanitary lift station emergency overflow (SOF-3). As part of the US Steel passive dewatering discharge for the dredging of the Grand Calumet River (GCR), Outfall 001 from permit No. IN0061077 discharges to US Steel Outfall 032. Final sampling for both outfalls is completed prior to the commingling of these individual wastewaters.

q. Outfall 033 - Grand Calumet River 0.2 MGD

The discharge from Outfall 033 is comprised of miscellaneous sheet & tin mill non-contact cooling water, atmospheric gas plant non-contact cooling water, Buchanan Street sanitary lift emergency overflow (SOF-51), EJ&E Railroad, steam condensate, and storm water.

r. Outfall 034 - Grand Calumet River 28.5 MGD

The discharge from Outfall 034 is comprised of treated process water from three internal outfalls:

Internal Outfall 604 consists of process from the No. 1 Tin-free Steel lines, East galvanizing lines, chrome reduction floor drains, spent chromic solutions from the Tinning and Galvanizing lines, No.1 Electrogalvanizing, Sheet Mills, 84" Hot Strip Mill, Pickling lines, and Tinning lines
Internal Outfall 605 consists of discharges from the 84" Hot Strip Mill wastewater treatment plant.

Internal Outfall 606 consists of non-contact cooling water from the Sheet and Tin Mill, PVS Technology manuf., 5 stand cold reduction mill, North Sheet Mill Annealing, No. 6 Galvanizing, No. 8 Galvanizing, Waste Acid Recycling Facility, steam condensate, PVS Technology Manufacturing Condensate, and storm water. In addition, emergency overflow from the “N”, “S”, and “T” process water pumping stations.

s. Outfall 035 - Lake Michigan 176.3 MGD

The discharge from Outfall 035 comprises of No. 13 Blast Furnace non-contact cooling water, Lakeside Energy (Co-Generation Plant) and No. 5 Power Station, steam condensate, and storm water runoff.

t. Outfall 036 - Lake Michigan 27.0 MGD

The discharge from Outfall 036 is comprised of 160"/210" Plate Mill non-contact cooling water, steam condensate, and storm water runoff.

u. Outfall 037 - Lake Michigan 3.0 MGD

The discharge from Outfall 037 is comprised of North Sheet Mill annealing cooling water, 80" Temper Mill non-contact cooling water, steam condensate, No. 10 air compressor, and storm water runoff.

v. Outfall 039 - Lake Michigan 55.0 MGD

The discharge from Outfall 039 is comprised of 84" HotStrip Mill Reheat Furnace non-contact cooling water, 84" Hot Strip Mill Miscellaneous non-contact cooling water, 84" Hot Strip Mill fire water distribution system, Steam condensate, cold well pump room flood protection, 84"

Hot Strip Mill Roughing Mill scale pit emergency overflow, and storm water runoff.

w. Outfall 040 - Stockton Pond 0.20 MGD

The discharge from Outfall 040 is comprised of No. 1 Electro-galvanize line non-contact cooling water, filter backwash, steam condensate, boiler blowdown, and storm water runoff.

x. Outfall 041 - Lake Michigan Inactive

Outfall 041 is currently listed as inactive by US Steel. This outfall consists of Ore Yard Rectifier non-contact cooling water, and storm water runoff.

**(The permit renewal application submitted by US Steel in 1999 designated Outfall 041 as inactive. A letter from US Steel was received on October 22, 2002 requesting to re-activate Outfall 041 in the permit. This request also included a request to separate the discharge between two outfalls 041A and 041B. A letter was sent to US Steel dated April 25, 2003 requesting additional information related to these discharges. As of the date of this draft permit a response from US Steel has not been received. Therefore, permit conditions cannot be incorporated into the draft permit at this time.**

y. Outfalls BW-1 thru BW-5 Lake Michigan

The discharges from Outfalls BW-1 thru BW-5 are composed of intake screen backwashes from the six service water pumping stations operated by USS.

z. Storm Water Discharges

US Steel-Gary Works submitted EPA Application Form 2F - Application to discharge storm water discharges associated with Industrial Activity. The previous permit regulated 15 storm water discharge outfalls. Since that permit was issued three of these outfalls have been closed (001,003,and SW09), four of the outfalls do not discharge any flow and are considered inactive (004, SW03, SW04, and SW07), and eight are monitored semi-annually (017, SS1, SW01, SW02, SW06, SW08, SW10, and SW11). One additional Outfall SW-12 (EJ&J Railroad) has been added to the semi-annual monitoring program. Storm water Outfall 134 discharges to the Mason Basin #5 and does not discharge to a water body. Gary Works currently has a Storm Water Pollution Prevention Plan and it has been updated as required. The last revision to this plan was April 4, 1997. US Steel's updated Storm Water Pollution Prevention (SWPPP) was submitted to IDEM to become part of the permit renewal application.

## C. Development of Proposed Effluent Limitations and Special NPDES Permit Conditions

1. Clean Water Act Requirements

Section 402 of the Clean Water Act (CWA) establishes a National Pollutant Discharge Elimination System (NPDES) permit program. The NPDES permit program is designed to limit the discharge of pollutants into navigable waters of the United States through a combination of various requirements including technology-based and water quality-based effluent limitations. The CWA provides that the Administrator of U.S. EPA, or his designee, must concur with major permits issued by delegated state agencies. The NPDES permit program for Indiana was delegated to the Indiana Department of Environmental Management by U.S. EPA.

Sections 301, 304, 306 and 307 of the CWA also provide that U.S. EPA must promulgate national effluent limitations guidelines and standards of performance for major industrial categories for three classes of pollutants: (1) conventional pollutants (e.g., Total Suspended Solids, Oil and Grease, Biochemical Oxygen Demand and pH); (2) toxic pollutants (e.g., toxic metals such as Chromium, Lead and Zinc; toxic organic pollutants such as Benzene, Benzo-a-pyrene, Naphthalene and Tetrachloroethylene); and (3) non-conventional pollutants (e.g., Ammonia-N, Fluoride and Phenols (4AAP)).
Six types of effluent limitations guidelines and standards must be promulgated for each major industrial category:

| Abbreviation | Effluent Limitation Guideline or Standard |
|---|---|
| BPT | Best Practicable Control Technology Currently Available |
| BAT | Best Available Technology Economically Achievable |
| BCT | Best Conventional Pollutant Control Technology |
| NSPS | New Source Performance Standards |
| PSES | Pretreatment Standards for Existing Sources |
| PSNS | Pretreatment Standards for New Sources |

The pretreatment standards are applicable to industrial facilities with wastewater discharges to publicly owned treatment works (POTWs) which generally are municipal wastewater treatment plants. The effluent limitations guidelines and new source performance standards are applicable to industrial facilities with direct discharges to navigable waters. Thus, for purposes of the proposed NPDES permit, only the first four types of effluent limitations guidelines and standards are applicable to the USS Gary Works. Section 301 of the CWA, as amended by the Water Quality Act of 1987, requires that BPT effluent limitations were to have been achieved by July 1, 1977. BAT effluent limitations for toxic pollutants, BAT effluent limitations for non-conventional pollutants, and BCT effluent limitations for conventional must be achieved within three years from date of promulgation but no later than March 31, 1989. Section 402(a)(1) of the CWA provides that in

the absence of promulgated effluent limitations guidelines or standards, the Administrator, or his designee, may establish effluent limitations for specific dischargers on a case-by-case basis. U.S. EPA regulations provide that these limits may be established using "best professional judgement" (BPJ) taking into account proposed effluent limitations guidelines and standards and other relevant scientific, technical and economic information.

As noted earlier, the effluent limitations guidelines and standards applicable to the USS Gary Works are found at 40 CFR Part 420 for cokemaking, sintering, ironmaking, steelmaking, vacuum degassing, continuous casting, hot forming, acid pickling, cold rolling, alkaline cleaning and hot coating operations; and, at 40 CFR Part 433 for the electro-plating operations. 40 CFR Part 420 was promulgated in May 1982, and amended in May 1984.
40 CFR Part 433 was promulgated in July 1983 and amended in 1986. The compliance date for achieving the BAT effluent limitations contained in 40 CFR Parts 420 and 433 was July 1, 1984. 40 CFR 420 was recently updated with the final revisions to this section signed April 30, 2002, and published in the Federal Register on October 17, 2002.

2. Technology-Based Effluent Limitations

Attachment IV presents the derivation of the applicable technology-based effluent limitations guidelines and standards for the USS Gary Works for each process wastewater outfall. For each of the basic steelmaking and steel finishing operations, the NPDES production rates developed by USS were used in combination with the BPT, BAT or BCT effluent limitations guidelines or NSPS from 40 CFR Part 420, as appropriate, to compute the allowable discharges of the regulated pollutants.

Following is a brief description of the application of the technology-based effluent limitations guidelines and standards by process operation:

a. Cokemaking

Outfalls 004, 005 and 010, and Internal Monitoring Outfall 501

For the cokemaking process the characteristic pollutants of cokemaking and by-product recovery operations are the following: ammonia-N, total cyanide, and phenols (4AAP). These are the parameters that the federal effluent guidelines have limited in order to demonstrate compliance with treatment performance. Outfalls 002,005,007,and 010 contained discharges from process leaks into non-contact cooling waters and infiltration from contaminated groundwaters and were specifically addressed in the 1990 consent decree. US Steel was required to complete four specific process modifications and remedial actions; conduct an extensive rehabilitation of the sewer systems for Outfalls 002, 005, 007 and 010 to minimize

discharges of pollutants from those outfalls; and, to document and continue to implement a wastewater management plan to ensure collection and disposal of process wastewaters. As part of wastewater management plan, Outfall 002 was closed and the wastewater flow diverted to Outfall 005. Outfall 007 has also been closed. Outfall 004 is inactive. Discharges that may occur from Outfall 004 would be storm water related and are covered under the storm water requirements of the permit.

US Steel and IDEM entered into an agreed order on April 3, 1996 relative to air pollution issues pertaining to US Steel's coke facility operations. In addition to the monetary penalty and significant reduction in the discharge of air pollutants to resolve violations of air rules, this agreed order contained additional environmental controls that are being added above and beyond those that are required to meet minimum standards. These additional controls qualified as supplementary environmental projects or SEPs. U.S. Steel was allowed to offset part of its monetary penalty by implementing these SEPs. One such SEP required the use of clean water rather than process wastewater to quench hot coke. Prior to this, US Steel used untreated process wastewater to cool (or quench) the coke after it comes out of the coke ovens. During the quenching process, pollutants in the process wastewater are either volatized into the air or recirculated through the quench sumps. The SEP required US Steel to use clean water (water taken directly from Lake Michigan) to quench the coke. US Steel also installed a treatment system to treat the wastewater that had been used to quench the coke prior to its discharge to the Grand Calumet River through Outfall 005. This process water results from moisture in the coal, by-product recovery process water and coke oven gas condensates. U.S. Steel applied for and received a permit modification to allow the discharge of treated cokemaking and by-product recovery process wastewater (biological treatment) and non-contact cooling water from the coke oven gas desulfurization facility, which was another SEP. Internal Outfall 501 was designated to monitor discharges from the cokemaking and by-product recover treatment system. Internal Outfall 502 was designated to monitor discharges from the Coke Oven Gas Desulfurization facility and related non-contact cooling water. Descriptions below.

(1) **INTERNAL OUTFALL 501-COKEMAKING AND BY-PRODUCT RECOVERY**

Internal Outfall 501 consists of the Coke by-product recovery water which is the collection and reuse of various components of the coke oven gas and flushing liquor. Several types of coke related wastewater are recirculated through the by-products recovery systems. These by-products include coal tars, light crude oil, ammonia, sulfur compounds, naphthalene and phenols. Wastewater is generated from a number of sources within the coke plant. Moisture and volatile components of the coal are generated by the coking process, captured in a collection system and processed through the by-product recovery area. The wastewater treatment system for the cokemaking and by-product recovery wastewater includes oil/tar separation, ammonia stripping, biological treatment and solids settling.

Internal Outfall 501 was established as a point of compliance for the discharge of approximately 1.41 MGD of treated cokemaking and by-product recovery wastewater. The following Table is based upon production numbers provided by US Steel and the applicable new source performance standards that were applied when the permit was modified in 1998. Pursuant to the NPDES permit regulations at 40 CFR 122.29(b), US Steel is subject to limits calculated in the 1998 permit modification that were based upon the NSPS promulgated in 1982 for its cokemaking operations for ten years, or until 2008. In addition to the parameters covered under the effluent limitation guidelines, US Steel is required to monitor for Free Cyanide, Total Iron and Dissolved Iron at this outfall.

The technology-based effluent limitations for Internal Outfall 501 are in Table 1 below:

**[US Steel intends to document the use of contaminated groundwater as being compatible to add to this system, this would replace some of the control water (source Lake Michigan) currently being used. This information was submitted October 30, 2002 and has been reviewed. Additional samples have been taken based upon a RCRA action as part of the East Side Groundwater SWMA Phase II Sampling and Analysis Plan. US EPA will forward results of the additional groundwater sampling when available. Pretreatment of this water may be required prior to introduction into the Coke Plant system.]**

**Table 1**
**Outfall 501**
**Technology-Based Effluent Limitations and Standards**
**40 CFR Part 420.14(a)**
**Effluent Limitations in lbs/day**

| Pollutant | New Source Performance Standards | |
|---|---|---|
| | 30-Day Average (lbs/day) | Daily Maximum (lbs/day) |
| Total Suspended Solids | 1,135 | 2,184 |
| Oil & Grease | ---- | 81.0 |
| Ammonia - N | 203.0 | 690.0 |
| Total Cyanide | 44.6 | 81.0 |
| Phenols (4AAP) | 0.41 | 0.81 |
| Benzene | ---- | 0.41 |

| | | |
|---|---|---|
| Naphthalene | ---- | 0.41 |
| Benzo(a)pyrene | ---- | 0.41 |

(2) **INTERNAL OUTFALL 502 COKE OVEN GAS DESULFURIZATION FACILITY NON-CONTACT COOLING WATER**

Internal Outfall 502 consists of the noncontact cooling water discharge generated as a result of the Coke Gas Desulfurization Project SEP in the Air Agreed Order. This desulfurization facility removes the sulfur compounds from coke oven gas and converts them to a marketable sulfur product, resulting in a reduction of 80 percent of the sulfur dioxide emissions from the coke ovens. The discharge resulting from this project was part of the clean water coke quench permit modification of the previous permit.

The coke oven gas desulfurization facility involves a number of chemical reactions that require specific temperatures. Therefore, non-contact cooling water is needed for the heating or cooling of chemical process equipment within the facility. The expected average flow rate through Internal Outfall 502 is approximately 5.23 MGD. The cooling water is supplied by the Gary Works Intake Pump Stations No. 3 & 4 which are located on the boat slip in Gary Harbor off of Lake Michigan. Chemicals are not added to the non-contact cooling water except to treat for zebra mussels at the Lake Michigan water intakes.

There are no specific federal effluent guidelines to cover this type of discharge but Internal Outfall 502 was established to identify potential cross contamination between the non-contact cooling water system and other process wastewaters. Monitoring requirements for flow, ammonia-N and pH were added in the previous permit and are being carried over to this permit.

Technology-based effluent limitations for blast furnace recycle treatment system blowdown are discussed in the next section. The proposed permit contains additional water quality-based effluent limitations for Outfalls 005 and 010.

b. Sinter Plant and Blast Furnaces
Outfalls 010, 015, 017, 018, 019 and 035

US Steel operates a combined treatment and recycle system for gas cleaning and gas cooling water from the blast furnaces. The No. 13 blast furnace has a separate process water recycle system. The sludge from that system is discharged to the combined system and make-up water is taken from the combined system. Gas cleaning water is no longer generated from

the Sinter Plant because a dry air pollution control system has been installed for sinter plant air emissions. Blowdown from the blast furnace treatment and recycle system is discharged through Internal Outfall 508 and subsequently through Outfall 010.

Internal Outfall 508 - Blast Furnace Recycle System (BFRS)

USS operates a combined treatment and recycle system for gas cleaning water from the sinter plant and gas cleaning and gas cooling water from the blast furnaces.
No. 13 blast furnace has a separate recycle system. The sludge from that system is discharged to the combined system and make-up water is taken from the combined system.

U.S. Steel received a permit modification to allow the Blast Furnace Recycle System (BFRS) wastewater to be discharged through Outfall 010, then regulated as Bubble Outfall 200, to utilize the ammonia effluent allocation for that outfall. Blast Furnace wastewater is subject to Federal Effluent Guidelines, 40 CFR 420.33 for ammonia, total cyanide, phenol (4AAP), lead and zinc. These parameters are monitored as Internal Outfall 508. The permit modification moved the BFRS discharge to Outfall 010 to be covered under the previous Bubble Outfall 200 but did not increase the ammonia allocation within this segment. The Lead and TSS limitations were reduced from the ELG allocation based upon the reasoning from the previous permit. The revised limitations for lead are 2.23 lbs monthly average and 5.17 daily maximum and for TSS are 500 lbs/day monthly average and 750 lbs/day daily maximum. The Total Cyanide limitations of 3.18 lbs/day monthly average and 7.38 lbs/day daily maximum are carried over from the previous permit based upon the previous allocation for T. Cyanide that existed at the previous Outfall 200. They replaced the ELG based upon a previous allocation at Outfall 200. US Steel has listed flows from this source as an intermittent amount. The Effluent Limitation Guidelines for this discharge are shown in Table 2 below. Reduced allocations are **[lbs/day-bolded]**.

**Table 2**
**Outfall 508**
**Technology-Based Effluent Limitations and Standards**
**40 CFR Part 420.32 and 33**
**Effluent Limitations in (lbs/day)**

| Pollutant | 30-Day Average (lbs/day) | Daily Maximum (lbs/day) |
|---|---|---|
| Total Suspended Solids | 1,003 **[500]** | 3,017 **[750]** |

| | | |
|---|---|---|
| Ammonia - N | 113.0 | 338.0 |
| T. Cyanide | 33.8 **[3.18]** | 67.5 **[7.38]** |
| Phenols (4AAP) | 1.13 | 2.25 |
| Total Residual Chlorine (TRC) | NA | ------ |
| Lead | 3.4 **[2.23]** | 10.1 **[5.17]** |
| Zinc | 5.1 | 15.2 |

Technology based effluent limitations are not applicable to Outfalls 017, 018, 019 and 035 because process waters are not discharged from these outfalls. Outfall 015 contains non-contact cooling water, storm water and the discharge from Internal Outfall 607 (treated landfill leachate, storm water, vacuum truck and truck washing wastewaters). There are no categorical effluent limitations guidelines for these wastewaters. Consequently, any technology-based effluent limitations at Outfall 015 would be based on best professional judgement, or Water Quality Based Effluent Limits (WQBELs).

c. Steelmaking, Vacuum Degassing, Continuous Casting and Hot Forming (160"/210" plate mill) Outfalls 019, 020, 028 and 030

USS operates separate recycle systems for the No. 2 Q-BOP and No. 1 BOP gas cooling water systems. Gas cleaning water from both melt shops is treated in thickeners and partially recycled. Blowdowns from both gas cooling water systems are routed to the BOF thickeners.

Intercondenser cooling water for the vacuum de-gasser is treated and recycled at a high rate. The underflow from a clarifier is the only discharge from this system, and is routed to the backwash clarifier from the No. 2 continuous caster.

The No 2 continuous caster is equipped with separate closed cooling systems for mold and machine cooling waters, and a separate treatment system for spray water consisting of a scale pit, pressure filters, backwash clarifier and cooling tower. The underflow from the backwash clarifier is the only discharge from this system, and is routed to the BOF thickeners. The water systems for the No. 3 continuous caster are similar to those for the No. 2 continuous caster. Spray water for the No. 1 continuous caster is treated on a once-through basis in a scale pit.

Partially treated wastewaters from all of the above operations; wastewaters from the plate and slab mills; a minor amount of non-contact cooling water; and, direct contact slab spray water are collected and pumped to the lagoons tributary to Outfall 030 for final treatment. The lagoon tributary to Outfall 030 is the principal treatment device.

BPT and BAT effluent limitations guidelines are applicable to the No. 1 BOP, No. 2 Q-BOP, and the No. 1 continuous caster. BPT and BCT effluent limitations guidelines are applicable to

the 160"/210"plate mill. NSPS are applicable to the vacuum degasser and the Nos. 2 and 3 continuous casters.

The NPDES permit limits toxic metals for steelmaking, vacuum degassing, and continuous casting operations at internal Outfall 603. The permit sets effluent limitations based upon federal effluent limitation guidelines for Total Suspended Solids (TSS) and Oil & Grease at the point of discharge (Outfall 030). The calculated limits are presented below in Table 3.

**Table 3**
**Outfall 603**
**Technology-Based Effluent Limitations and Standards**
**Effluent Limitations in lbs/day**

| Pollutant | 30-Day Average (lbs/day) | Daily Maximum (lbs/day) |
|---|---|---|
| Total Suspended Solids | 2,038 | 5,933 |
| Oil & Grease | 123.0 | 687.1 |
| Lead | 8.7 | 26.1 |
| Zinc | 13.1 | 39.1 |

Outfalls 019 and 020 consists of non-contact and non-process type waters and are not covered by any effluent guideline.

d. Steel Finishing and Electro-plating Operations, Hot Forming (84" hot strip mill) Outfall 034.

USS operates a centralized wastewater treatment facility for steel finishing and electro-plating wastewaters consisting of oil emulsion breaking; dissolved air flotation; separate precipitation of zinc bearing wastewaters from the electro-galvanizing line; pre-treatment of hexavalent chromium from the chromium plating facilities; and combined sedimentation of all wastewaters for suspended solids and toxic metals removal. The discharge from this facility is limited and monitored at Internal Outfall 604. The combination of BPT and BAT effluent limitations from 40 CFR Parts 420 and 433 are summarized below. As detailed in Attachment IV, the effluent limitations include BPJ effluent limitations for Total Suspended Solids and Oil and Grease for oily wastewaters from the oil cellars at the 84" Hot Strip Mill. The oily wastewaters from the 84" hot strip mill oil cellars are more effectively co-treated with oily wastewaters from finishing operations than in the hot strip mill filtration and recycle system. Effluent limitations except for

Total Suspended Solids developed based upon discharges through Outfall 604 were limited at Outfall 034 (see Table 4). It is proposed to move the monitoring except for Oil and Grease back up to Internal Outfall 604 for monitoring and compliance purposes. Effluent limitations for Oil and Grease remain at Outfall 034 (see Table 5).

Effluent limitations for cadmium, nickel and silver for Outfall 604 are derived from Part 433 (Metal Finishing). Because these metals are not present at significant levels in raw materials used by US Steel, once per quarter monitoring will be proposed. The BPT/BCT effluent limitations for the 84" hot strip mill are summarized in Table 6 below:

The previous NPDES permit contained more stringent effluent limitations for the 84" hot strip mill at internal Outfall 605 that were carried over from the then previous permit. These same limitations will be carried forward to the current permit based upon antibacksliding regulation at 40 CFR 122.44(l). These limitations are shown below and are also shown in (Bold) next to the calculated ELG in Table 6 below:

| Pollutant | 30-day Average (lbs/day) | Daily Maximum (lbs/day) |
|---|---|---|
| TSS | 725 | 2,125 |
| Oil & Grease | ----- | 1,450 |

**Table 4**
**Internal Outfall 604**
**Technology-Based Effluent Limitations applied at Outfall 604**
**Effluent Limitations (lbs/day)**

| Pollutant | 30-Day Average (lbs/day) | Daily Maximum (lbs/day) |
|---|---|---|
| Total Suspended Solids | 3,269 | 7,166 |
| T. Cyanide | 18.4 | 34.0 |
| Cadmium | 7.4 | 19.6 |
| Chromium | 48.5 | 78.5 |
| Hexavalent Chromium | 0.16 | 0.46 |

| | | |
|---|---|---|
| Copper | 58.7 | 95.8 |
| Nickel | 67.5 | 112.9 |
| Silver | 6.8 | 12.2 |
| Lead | 20.2 | 43.5 |
| Zinc | 50.9 | 100.9 |
| Naphthalene | ---- | 1.7 |
| TCE | ---- | 2.50 |
| TTO | ---- | 60.4 |

**Table 5**
**Outfall 034**
**Technology-Based Effluent Limitations**
**Effluent Limitations in lbs/day**
**Oil and Grease ELG derived from Outfall 604 and 605**

| **Pollutant** | **30-Day Average (lbs/day)** | **Daily Maximum (lbs/day)** |
|---|---|---|
| Oil & Grease | 1,515 | 5,171 |

**Table 6**
**Technology-Based Effluent Limitations and Standards**
**Internal Outfall 605**
**Effluent Limitations in lbs/day**

| **Pollutant** | **30-Day Average (lbs/day)** | **Daily Maximum (lbs/day)** |
|---|---|---|
| Total Suspended Solids | 5898.0 **(725)** | 15741.0 **(2125)** |
| Oil and Grease | ------- | 3,944.0 **(1,450)** |

3. **Water Quality Based Effluent Limitations**

Water quality based effluent limitations were developed using 327 IAC 5-2-11.4 and reasonable potential determinations using 327 IAC 5-2-11.5. Effluent limits developed for benzo(a)pyrene considered additivity for benzo(a)pyrene and benzene per 327 IAC 5-2-11.4. Water quality based effluent limits are shown for parameters of concern in the reasonable potential to exceed in Tables 1-14 in Attachment V. Reasonable potential for whole effluent(WET) is shown in Table 15 in Attachment V.

4. **Proposed Effluent Limitations by Outfall**

**Outfalls 005 and 010 (formerly regulated as Bubble Outfall 200 )**

Water Quality Based Effluent Limitations are being applied at the individual Outfalls 005 and 010 in this renewed permit. The combination (bubble) Outfall 200 will no longer be used. During the response to Discovery review in the US Steel Selenium metal translator appeal, a review of US Steel's DMR's was conducted. During this review it was noticed on some DMR's that all of the Selenium data was below the Limit of Quantitation at Outfalls 005 and 010, Selenium was reported as a value of zero at Outfall 200. Outfall 200 is the mathematical combination of values for the individual values at the respective outfalls 005 and 010. While the monthly average calculation based on the rules in the GLI may allow a zero to be reported, the daily values and the highest monthly value should have been something above zero. In light of this it was determined that the values reported at the bubble may not be a true indication of what was being discharged into the Grand Calumet River at the individual outfalls. A decision was made to apply the water quality based effluent limitations at the respective individual outfalls.

In the previous permit Outfall 200 had limits the following parameters: Ammonia (as N), Free Cyanide, Phenols (4AAP), Fluoride, Selenium, Benzene, and Benzo(a)pyrene.

The following parameters showed reasonable potential based upon analysis required in 327 IAC 5-2-11.5: Mercury (005 and 010), Selenium (005), Benzo(a)anthracene (005), Benzo(a)pyrene (005 and 010), Total Residual Chlorine (005 and 010), and Free Cyanide (005 and 010).

**Fluoride**

It is proposed to drop fluoride limits from the effluent limitations. Fluoride was added as a parameter of concern during the Coke Plant Modification, US Steel submitted additional toxicity information as part of their compliance schedule that was used in developing a revised Tier II value for fluoride. Based upon this updated Tier II value, US Steel no longer shows reasonable potential to exceed the water quality standards for Fluoride at Outfalls 005 and 010. However, fluoride is a component of the US Steel discharge from Outfall 005 and continued

monitoring on a 3 times per month basis will be required. The requirement for monitoring Fluoride at Outfall 010 has been removed from this renewed permit.

**Benzene**

Based upon a limited number of data values taken during the application for the Coke Plant Modification, benzene showed reasonable potential in 1997. Based upon the application that included values from a data set of almost 400 data points, benzene no longer shows reasonable potential to exceed water quality standards and the limits are no longer required. Since the coke plant is a major source of benzene and the use of the groundwater (if approved) will potentially add significant quantities of Benzene to the system, the monitoring of Benzene at Outfall 005 at 3 times per month will continue.

**Ammonia**

Ammonia is regulated in the current permit. Based on the current outfall data there is not a reasonable to exceed the water quality based effluent limits. However, ammonia is a component of the discharge through Outfall 005 and is treated in the Coke plant wastewater treatment system and through Outfall 010 from Internal Outfall 508, Blast Furnace Recycle System. Limitations from the previous permit will be carried over to the current permit and have been re-allocated between the Outfalls 005 and 010 respectively.

**Mercury**

The discharge from Outfalls 005 and 010 exhibit a reasonable potential to exceed water quality based effluent limitations for Mercury. Limitations for Mercury will be placed in the permit and a five year compliance schedule is included in the permit to meet the effluent limitations for Mercury.

**Selenium**

Selenium was added to the permit at the time of the Coke Plant Modification issued in February 1998. It showed reasonable potential to exceed water quality based effluent limits. Selenium was under a compliance schedule with final effluent limits to take effect by April 1, 2003. US Steel submitted a metal translator study on April 19, 2002. A review of the study was completed and the results of the review were sent to US Steel in a letter dated August 26, 2002. US Steel may request the use of an alternate translator by using site-specific data but must conduct a site-specific study to identify the ratio of the dissolved fraction to the total recoverable fraction for a metal in the receiving waterbody outside the mixing zone. If US Steel provides an acceptable study, and other provisions of 327 IAC 2-1.5 and other parts of 327

IAC 5 such as antibacksliding and antidegradation are satisfied, the use of the alternate site-specific translator to convert a dissolved WLA into a total recoverable WLA may be used.

**Phenols (4AAP)**

BAT limits for Phenols (4AAP) were included in the previous permit. The calculated BAT limits at Outfall 508, which is the main source of Phenols at this outfall, are much more stringent than the limitations at the final outfall. Therefore, this parameter will be regulated only at Outfall 508. No limitations or monitoring requirements for Phenols (4AAP) are proposed for either Outfall 005 and 010.

**Total Residual Chlorine**

US Steel uses chlorine for zebra mussel control and is limited on most of the permitted outfalls. Outfalls 005 and 010 will be limited for Total Residual Chlorine (TRC). Since similar effluent limitations existed for Total Residual Chlorine (TRC) in the previous permit, no compliance schedule is required.

**Free Cyanide**

Water Quality Based Effluent Limits for free cyanide continue for Outfalls 005 and 010. A reasonable potential analysis was done per 327 IAC 5-2-11.5 and free cyanide has the reasonable potential to exceed the water quality based effluents for this segment. These limits are based upon the exclusion of the site specific criterion calculated in the February 1998 modification.

In the permit renewal application submitted on March 9, 1999, United States Steel requested continued application of the site-specific criteria for cyanide as approved by IDEM in the February 25, 1998 modification to the permit.

IDEM previously granted US Steel's request, pursuant to327 IAC 2-1.5-16(a)(1)(B)(ii), for site-specific cyanide criteria. This provision allows aquatic life criteria to be modified on a site-specific basis when the sensitivity of the aquatic organisms species that occur at the site differs from the species actually tested in developing the criteria.

"Occur at the site" is defined at 327 IAC 2-1.5-2(60) as follows:

(60) "Occur at the site" includes the species, genera, families, orders, classes, and phyla that:

(A) are usually present at the site;

(B) are present at the site only seasonally due to migration;

(C) are present intermittently because they periodically return to or extend their ranges into the site;

(D) were present at the site in the past, are not currently present at the site due to degraded conditions, and are expected to return to the site when conditions improve; or

(E) are present in nearby bodies of water, are not currently present at the site due to degraded conditions, and are expected to be present at the site when conditions improve.

The taxa that occur at the site cannot be determined merely by sampling downstream and upstream of the site at one (1) point in time. The term does not include taxa that were once present at the site but cannot exist at the site now due to permanent physical alteration of the habitat at the site, for example, alterations resulting from dams.

Salmonids were one of the species included in the database used to calculate the cyanide criteria set forth in 327 IAC 2-1.5-8(b)(3). When IDEM granted US Steel's request for site-specific cyanide criteria, IDEM did not have conclusive data documenting the presence of salmonids in the upper reach of the East Branch of the Grand Cal River. Therefore, IDEM approved the site-specific criteria that were calculated using the recalculation procedure, resulting in the removal of salmonids from the database. This in turn resulted in less stringent acute and chronic criteria than provided for in 327 IAC 2-1.5-8(b)(3).

Salmonids have recently been found in the East Branch of the Grand Calumet River, including the stretch in which the site-specific cyanide criteria apply. More specifically, a study conducted by the US Fish & Wildlife Service between September and November of 1999 documented the presence of 465 chinook salmon and three rainbow trout. US Steel itself, in its report entitled "Derivation of Baseline Bioaccumulation Factors from Grand Calumet River Field Measured BAFs for Benzo(a)pyrene," documented the presence of chinook salmon at the Virginia Street and Tennessee Street bridges. Additionally, IDEM documented the presence of approximately 100 chinook salmon when it investigated a fish kill between Outfall 005 and the Tennessee Bridge in the East Branch in October of 2001.

Because the presence of salmonids in the East Branch has recently been verified, IDEM has developed water quality based effluent limits for the permit renewal utilizing the criteria with salmonids included in the database.

**Benzo(a)anthracene**

A water quality based effluent limitation is being added to Outfall 005 for benzo(a)anthracene based upon the reasonable potential analysis that was completed per 327 IAC 5-2-11.5. This parameter has not been limited at this facility before, therefore, a three year schedule of compliance will be placed in the permit.

**Benzo(a)pyrene**

IDEM developed Tier II benzo(*a*)pyrene (BaP) human health values for the Great Lakes System in August 1997 pursuant to 327 IAC 2-1.5-14. The human health values were developed by taking into account several factors, including the bioaccumulation factor (BAF) for BaP. Indiana rules allow BAFs to be calculated using four different methods, depending on the type of data available. Due to the limited availability of bioaccumulation data for BaP, IDEM calculated the BAFs for BaP using only the fat solubility ($K_{ow}$) of BaP as required by 327 IAC 2-1.5-13(c). As part of 1998 Coke Plant modification, US Steel was given a five year compliance schedule to meet the final effluent limitations. That compliance schedule allowed US Steel to submit studies that could update the Tier I value used to calculate the final effluent limitation.

In March 2000**,** US Steel submitted proposed field measured BAFs for benzo(*a*)pyrene (BaP) to replace the BAFs calculated by IDEM (which would allow IDEM to calculate Tier I BaP human health criteria). The field study submitted by US Steel provided fish tissue and water concentrations of BaP collected from the East Branch of the Grand Calumet River where the US Steel facility is located. IDEM accepted most of the data submitted by US Steel for use in developing new BaP BAFs. Based on the data submitted to IDEM and the BAF methodologies in 327 IAC 2-1.5-13, IDEM re-calculated the BaP human health BAFs and utilized these BAFs to develop Tier I human health criteria.

The water quality based effluent limits for benzo(a)pyrene were based upon the additivity requirements as specified in 327 IAC 5-2-11.4.

**$CBOD_5$**

US Steel on several occasions, including a letter dated August 9, 2002 , has requested that the $CBOD_5$ effluent limitations at Outfall 034 be re-evaluated. US Steel has suggested that by updating the model for current flows, etc., the model should indicate that the $CBOD_5$ limitations could be increased or even removed from the permit.

A review was made between the data and loadings that US Steel used in their revised model

and the data used in the original 1992 wasteload allocation run. The original model used concentrations of approximately 2mg/l, since at that time, US Steel showed values below detection (<2 mg/l) at several of the US Steel Outfalls that discharge to the Grand Calumet River. A review of current data indicates that several of these outfalls are now discharging above the original 2 mg/l concentration used in the original modeling and should be further monitored to get a more complete characterization of the amount of $CBOD_5$ being discharged from these outfalls. This permit will include additional monitoring at Outfalls 005, 015, 018, 019, 020, 028, and 030.

In addition, US Steel tried to show IDEM that the $CBOD_5$ load allocated to Outfall 034 could be increased and the Dissolved Oxygen (DO) concentration produced by the model would still be above a concentration of 5.0 mg/l DO (the critical point in the model). However, based upon a review of the data from various outfalls at various points in time, DO concentrations at or below 5.0 mg/l have been recorded in several instances. These samples were collected at a time when both the Gary Sanitary District and East Chicago were discharging at about ½ of their permitted $CBOD_5$ loads. US Steel on the other hand has been discharging at approximately their permitted $CBOD_5$ loadings. Therefore, the $CBOD_5$ limitations remain unchanged from the previous permit. Concentration values have been included in addition to the mass limitations.

**Monitoring Requirements**

Monitoring requirements will be retained for Lead (010), Zinc (010), Chlorides (005 and 010), Sulfates (005 and 010), and Fluoride (005). Although these did not show reasonable potential they are still a significant component of this discharge and continued monitoring will be required.

Monitoring for Vanadium, Strontium and Zirconium will be required for a twelve month period to determine if these metals are being discharged at levels that has a reasonable potential to exceed water quality based effluent limitations at Outfall 005. The application submitted by US Steel indicated that these metals could be in the discharge from Outfall 005 via Internal Outfall 501. Monitoring for these three metals will be required at both 005 and 501 for a minimum twelve month period. At the end of the twelve month monitoring period US Steel can request a review of this requirement.

**Outfall 005**

Discharge Limitations
Outfall 005

| Quantity or Loading | Quality or Concentration | Monitoring Requirements |
|---|---|---|

| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
|---|---|---|---|---|---|---|---|---|
| Flow | Report | Report | MGD | ------ | ------ | ---- | Daily | Continuous |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 10 X Monthly* | 3 Grabs/24-Hrs |
| Selenium | 1.8 | 4.2 | lbs/day | 3.5 | 8.2 | µg/l | 10 X Monthly* | 24-Hr. Comp. |
| Benzene | Report | Report | lbs/day | Report | Report | µg/l | 3 X Monthly | 3 Grabs/24-Hrs |
| Benzo-a-pyrene | | | | | | | | |
| Interim | Report | Report | lbs/day | Report | 1.0 | µg/l | 10 X Monthly* | 24-Hr. Comp. |
| Final | 0.04 | 0.09 | lbs/day | | 0.08 | 0.18 µg/l | 10 X Monthly* | 24-Hr. Comp. |
| Ammonia(as N) | | | | | | | | |
| Summer | 217.0 | 387.0 | lbs/day | 720 | 1,700 | µg/l | 10 X Monthly* | 24-Hr. Comp. |
| Winter | 437.0 | 962.0 | lbs/day | 1,200 | 2,800 | µg/l | 10 X Monthly* | 24-Hr. Comp. |
| Free Cyanide | 1.9 | 4.3 | lbs/day | 3.7 | 8.5 | µg/l | 10 X Monthly* | 3 Grabs/24-Hrs |

Discharge Limitations
Outfall 005 (Cont.)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Mercury | 0.0007 | 0.002 | lbs/day | 1.4 | 3.2 | ng/l | Bi-Monthly | Grab |
| Total Residual Chlorine | 4.1 | 9.2[10] | lbs/day | 8 | 18 | µg/l | Daily | Grab |
| $CBOD_5$ | Report | Report | lbs/day | Report | Report | mg/l | 3 X Monthly | 24-Hr. Comp. |
| Benzo(a)anthracene | 0.01 | 0.02 | lbs/day | 0.02 | 0.04 | µg/l | 10 X Monthly* | 24-Hr. Comp. |
| Fluoride | Report | Report | lbs/day | Report | Report | µg/l | 3 X Monthly | 24-Hr. Comp. |
| Chloride | Report | Report | lbs/day | Report | Report | mg/l | 3 X Monthly | 24-Hr. Comp. |
| Sulfate | Report | Report | lbs/day | Report | Report | mg/l | 3 X Monthly | 24-Hr. Comp. |
| Vanadium | Report | Report | lbs/day | Report | Report | ug/l | 3 X Monthly | 24-Hr. Comp. |
| Strontium | Report | Report | lbs/day | Report | Report | ug/l | 3 X Monthly | 24-Hr. Comp. |
| Zirconium | Report | Report | lbs/day | Report | Report | ug/l | 3 X Monthly | 24-Hr. Comp. |
| Whole Effluent Toxicity | See Part I.L., Biomonitoring Requirements of the Permit | | | | | | | |
| Temperature | | | | | | | | |
| Interim | ------ | ----- | ------- | ------- | Report | °F | 1 X Monthly | 6 Grabs/24-Hrs. |
| Final | ------ | ----- | ------ | ------- | Report | °F | Daily | Continuous |
| Temperature Exceedance Time | ------- | Report | Minutes | | | | Daily | Continuous |
| Thermal Discharge | ------ | Report | BTU/Hr. | | | | Daily | Report |

| | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | 6.0 | 9.0 | s.u. | 3 X Weekly | Grab |

## Internal Outfalls 501 & 502

## Internal Outfall 501

When Outfall 501 was set up for discharges from the Coke Plant (Outfall 501), effluent limitations from the federal effluent guideline were based upon New Source Performance Standards (NSPS) and are to be in effect for this discharge for a period of ten years. This is based upon Federal Rules and are contained in 40 CFR 122. Therefore these limits are the same as was included in the Coke Plant modification. These limits will be in effect until 2008.

Discharge Limitations
Internal Outfall 501

| Parameter | Quantity or Loading Monthly Average | Daily Maximum | Units | Quality or Concentration Monthly Average | Daily Maximum | Units | Monitoring Requirements Measurement Frequency | Sample Type |
|---|---|---|---|---|---|---|---|---|
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| TSS | 1,135 | 2,184 | lbs/day | Report | Report | mg/l | 2X Weekly | 24 Hr. Comp. |
| Oil & Grease | --- | 81.0 | lbs/day | --- | Report | mg/l | 10X Monthly | 3 Grabs/24 Hours |
| Selenium | Report | Report | lbs/day | Report | Report | µg/l | 10X Monthly | 24-Hr. Comp. |
| Benzene | --- | 0.41 | lbs/day | --- | Report | µg/l | 10X Monthly | 3 Grabs/24 Hours |

Discharge Limitations
Internal Outfall 501 (Cont.)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Benzo-a-pyrene | Report | 0.41 | lbs/day | Report | Report | µg/l | 10X Monthly | 24-Hr. Comp. |
| Naphthalene | --- | 0.41 | lbs/day | --- | Report | µg/l | 10X Monthly | 24-Hr. Comp. |
| Phenols (4AAP) | 0.41 | 0.81 | lbs/day | Report | Report | µg/l | 10X Monthly | 24-Hr. Comp. |
| Ammonia (as N) | 203.0 | 690.0 | lbs/day | Report | Report | µg/l | 10X Monthly | 24-Hr. Comp. |
| Cyanide, Total | 44.6 | 81.0 | lbs/day | Report | Report | µg/l | 10X Monthly | 3 Grabs/24 Hours |
| Cyanide, Free | Report | Report | lbs/day | Report | Report | µg/l | 10X Monthly | 3 Grabs/24 Hours |
| Vanadium | Report | Report | lbs/day | | Report | Report | mg/l | 3 X Monthly24-Hr. Comp. |
| Strontium | Report | Report | lbs/day | | Report | Report | mg/l | 3 X Monthly24-Hr. Comp. |
| Zirconium | Report | Report | lbs/day | | Report | Report | mg/l | 3 X Monthly24-Hr. Comp. |
| | | | | Minimum Daily | Maximum Daily | | | |
| pH | ---- | ------ | | 6.0 | 9.0 | s.u. | 3 X Weekly | Grab |

## Internal Outfall 502

Outfall 502 monitors the discharge of non-contact cooling water from the coke oven gas desulfurization facility. Discharge Limitations are specified below.

Discharge Limitations
Internal Outfall 502

| Parameter | Quantity or Loading Monthly Average | Daily Maximum | Units | Quality or Concentration Monthly Average | Daily Maximum | Units | Monitoring Requirements Measurement Frequency | Sample Type |
|---|---|---|---|---|---|---|---|---|
| Flow | Report | Report | MGD | --- | --- | --- | 1 X Weekly | Report |
| Ammonia (as N) | --- | --- | -- | Report | Report | mg/l | 1 X Weekly | Grab |

| | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | Report | Report | s.u. | 1 X Weekly | Grab |

## Outfall 010

Discharge Limitations
Outfall 010

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Monthly | Daily | | Monthly | Daily | | Measurement | Sample |
| Parameter | Average | Maximum | Units | Average | Maximum | Units | Frequency | Type |
| Flow | Report | Report | MGD | ------ | ------ | ---- | Daily | Continuous |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 10 X Monthly | 3 Grabs/24-Hrs |
| Total Residual Chlorine | 0.1 | 0.2 | lbs/day | 8 | 18 | µg/l | Daily | Grab |

Discharge Limitations
Outfall 010(Cont.)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Benzo-a-pyrene | | | | | | | | |
| Interim | Report | Report | lbs/day | Report | 1.0 | µg/l | 10 X Monthly | 24-Hr. Comp. |
| Final | 0.001 | 0.002 | lbs/day | 0.08 | 0.18 | µg/l | 10 X Monthly | 24-Hr. Comp. |
| Ammonia(as N) | | | | | | | | |
| Summer | 113.0 | 338.0 | lbs/day | 720 | 1,700 | µg/l | 10 X Monthly | 24-Hr. Comp. |
| Winter | 113.0 | 338.0 | lbs/day | 1,200 | 2,800 | µg/l | 10 X Monthly | 24-Hr. Comp. |
| Free Cyanide | 0.04 | 0.1 | lbs/day | 3.7 | 8.5 | µg/l | 10 X Monthly | 3 Grabs/24-Hrs |
| Mercury | | | | | | | | |
| Interim | Report | Report | lbs/day | Report | Report | ng/l | Bi-Monthly | Grab |
| Final | 0.00002 | 0.00004 | lbs/day | 1.4 | 3.2 | ng/l | Bi-Monthly | Grab |
| Chloride | Report | Report | lbs/day | Report | Report | mg/l | 3 X Monthly | 24-Hr. Comp. |
| Sulfate | Report | Report | lbs/day | Report | Report | mg/l | 3 X Monthly | 24-Hr. Comp. |
| $CBOD_5$ | Report | Report | lbs/day | Report | Report | mg/l | 3 X Monthly | 24-Hr. Comp. |
| Lead | Report | Report | lbs/day | Report | Report | µg/l | 10 X Monthly | 24-Hr. Comp. |
| Zinc | Report | Report | lbs/day | Report | Report | µg/l | 10 X Monthly | 24-Hr. Comp. |
| Temperature | | | | | | | | |
| Interim | ------ | ----- | ------- | ------- | Report | °F | 1 X Monthly | 6 Grabs/24-Hrs. |
| Final | ------ | ----- | ------ | ------- | Report | °F | Daily | Continuous |
| Temperature | | | | | | | | |
| Exceedance Time | ------- | Report | Minutes | | | | Daily | Continuous |
| Thermal Discharge | ------ | Report | BTU/Hr. | | | | Daily | Report |

| | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | 6.0 | 9.0 | s.u. | 3 X Weekly | Grab |

## Internal Outfall 508

When the previous permit was modified to include the blast furnace recycle system discharge to be included in Outfall 010 discharge, the federal effluent guideline allocations were modified based upon existing permit effluent limitations for Total Suspended Solids (TSS), Total Cyanide and zinc. Effluent limitations for lead and zinc were the more stringent water quality effluent limitations allocated to Outfall 400. The limitations for TSS, T. Cyanide, and Lead are from the previous permit.

Discharge Limitations
Internal Outfall 508

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Monthly | Daily | | Monthly | Daily | | Measurement | Sample |
| Parameter | Average | Maximum | Units | Average | Maximum | Units | Frequency | Type |
| Flow | Report | Report | MGD | ___ | ___ | __ | Daily | Continuous |
| TSS | 500 | 750 | lbs/day | Report | Report | mg/l | 10X Monthly | 24-Hr. Comp |
| Ammonia-N | 113.0 | 338.0 | lbs/day | Report | Report | mg/l | 10X Monthly | 24-Hr. Comp |

Discharge Limitations
Internal Outfall 508 (Cont.)

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Cyanide, Total | 3.18 | 7.38 | lbs/day | Report | Report | mg/l | 10X Monthly | 3 Grabs/24 Hrs |
| Phenols(4AAP) | 1.13 | 2.25 | lbs/day | Report | Report | mg/l | 10X Monthly | 24-Hr. Comp |
| Lead | 2.23 | 5.17 | lbs/day | Report | Report | mg/l | 10X Monthly | 24-Hr. Comp |
| Zinc | 5.1 | 15.2 | lbs/day | Report | Report | mg/l | 10X Monthly | 24-Hr. Comp |
| | | | | Minimum Daily | Maximum Daily | | | |
| pH | ---- | ------ | | Report | Report | s.u. | 1 X Weekly | Grab |

**Individual Monitoring of Outfalls 015, 607, and 017**

Discharge limitations and monitoring requirements are required separately for Outfalls 015, 017 and 607. Water Quality Bubble (Combined 015 and 017) Outfall 400 has been separated into limitations at the respective outfalls. Outfall 015 includes some non-contact cooling water that requires temperature monitoring. In addition, Internal Outfall 607 (SWD-1) treated landfill leachate and associated wastewaters are discharged through Outfall 015. Outfall 017 discharges small amounts of miscellaneous non-process waters and some storm water.

Tables 3 & 4 in Attachment V (Reasonable Potential Tables) shows the reasonable potential to exceed water quality standards analysis as required in 327 IAC 5-2-11.5. Mercury and Total Residual Chlorine have the reasonable potential to exceed water quality standards and require water quality based effluent limitations be placed in the permit. Mass limitations for ammonia, Total Cyanide and Phenols (4AAP) were in the previous permit. These parameters were placed in the permit to determine if cross contamination from process wastewater is occurring. Continued monitoring for

ammonia is proposed. In stead of monitoring for Total Cyanide it is proposed to require monitoring of Free Cyanide. Increased levels of ammonia or Free Cyanide should be investigated to determine the source and those sources will be eliminated.

The monitoring requirements and effluent limitations for T. Cyanide, Lead, Zinc, and Phenols (4AAP) come from the BAT requirements related to the discharge of the blowdown from the Blast Furnace Recycle System originally through Outfall 017. Through a previous permit modification, the blast furnace recycle system discharge was relocated to Outfall 010. Since the source of the requirement for Total Cyanide, Lead, Zinc, and Phenols (4AAP) has been relocated, and no reasonable potential exists, limitations for these parameters are removed from Outfalls 015 & 017, respectively. However, continued monitoring for lead and zinc at Outfalls 015 & 017 is being retained at 3X Monthly. Free Cyanide and ammonia monitored as stated above.

Individual discharge limitations requirements for Outfalls 015, 607, and 017 are detailed below:

**Outfall 015**

Discharge Limitations
Outfall 015

| | Quantity or Loading | | | Quality or Concentration | | Monitoring Requirements | | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| Total Suspended Solids | Report | Report | lbs/day | Report | Report | mg/l | 3 X Weekly | 24-Hr. Comp. |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 1 X Weekly | Grab |
| Ammonia (as N) | Report | Report | lbs/day | Report | Report | mg/l | Daily | 24-Hr. Comp. |
| $CBOD_5$ | Report | Report | lbs/day | | Report | Report | | mg/l 3 X Monthly 24-Hr. Comp. |
| Free Cyanide | Report | Report | lbs/day | Report | Report | mg/l | 3 X Weekly | 3 Grabs/24-Hrs |
| Phenols (4AAP) | Report | Report | lbs/day | Report | Report | mg/l | 3 X Weekly | 24-Hr. Comp. |
| Lead | Report | Report | lbs/day | Report | Report | mg/l | 3 X Monthly | 24-Hr. Comp. |
| Zinc | Report | Report | lbs/day | Report | Report | mg/l | 3 X Monthly | 24-Hr. Comp. |
| Temperature | | | | | | | | |
| Interim | — | — | — | — | Report | $^{O}F$ | 3 X Weekly | Grab |
| Final | --- | --- | --- | --- | Report | $^{O}F$ | Daily | Continuous |
| Thermal Discharge | --- | Report | BTU/Hr | --- | --- | --- | Daily | Report |
| Temperature Exceedance Time | ------- | Report | Minutes | | | | Daily | Continuous |
| Total Residual | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Chlorine | 0.11 | 0.25 | lbs/day | 8 | 18 | ug/l | Daily | Grab |
| Mercury | | | | | | | | |
| Interim | Report | Report | lbs/day | Report | Report | ng/l | Bi-Monthly | Grab |
| Final | 0.00002 | 0.00004 | lbs/day | 1.4 | 3.2 | ng/l | Bi-Monthly | Grab |

| | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | 6.0 | 9.0 | s.u. | 1 X Weekly | Grab |

**Outfall 607 is the Internal Outfall for the SWD-1 Landfill contributing to Outfall 015**

Internal Outfall 607: Through a previous permit modification in 1996, Internal Outfall 607 was added to monitor the discharge from the Solid Waste Disposal 1 (SWD-1) leachate which ultimately discharges through Outfall 017. A new landfill was constructed on-site and the following wastewater is currently generated: decant pad water, truck wash water, Solid Waste Disposal 1 leachate, and vacuum truck free liquids.

There are no changes to the limitations or monitoring requirements for Outfall 607 from the previous permit modified in August 1999. Discharge Limitations for Internal Outfall 607 are as follows:

Discharge Limitations
Outfall 607

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| Total Suspended Solids | Report | Report | lbs/day | 30.0 | 60.0 | mg/l | 1 X Weekly | 24-Hr. Comp |
| Oil & Grease | Report | Report | lbs/day | 10.0 | 15.0 | mg/l | 1 X Weekly | Grab |
| Ammonia (as N) | Report | Report | lbs/day | Report | Report | mg/l | 1 X Weekly | 24-Hr. Comp |
| Free Cyanide | Report | Report | lbs/day | Report | Report | mg/l | 1 X Monthly | 24-Hr. Comp |
| Phenols (4AAP) | Report | Report | lbs/day | Report | Report | mg/l | 1 X Monthly | 24-Hr. Comp |
| Lead | Report | Report | lbs/day | Report | Report | mg/l | 1 X Monthly | 24-Hr. Comp |
| Zinc | Report | Report | lbs/day | Report | Report | mg/l | 1 X Monthly | 24-Hr. Comp |
| Benzo-a-pyrene | Report | Report | lbs/day | Report | Report | mg/l | 1 X Quarterly | 24-Hr. Comp |

| | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | 6.0 | 9.0 | s.u. | 1 X Weekly | Grab |

**Outfall 017**

The Oil & Grease and pH limitations are carried over from the previous permit. Outfall 017 will be monitored as follows:

Discharge Limitations
Outfall 017

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | 24-Hr. Total |
| Total Suspended Solids | Report | Report | lbs/day | Report | Report | mg/l | 3 X Weekly | 24-Hr. Comp. |
| Oil & Grease | — | — | -- | --- | 10.0 | mg/l | 1 X Weekly | Grab |
| Ammonia (as N) | Report | Report | lbs/day | Report | Report | mg/l | Daily | 24-Hr. Comp. |
| Total Cyanide | Report | Report | lbs/day | Report | Report | mg/l | 3 X Weekly | 3 Grabs/24-Hrs |
| Phenols (4AAP) | Report | Report | lbs/day | Report | Report | mg/l | 3 X Weekly | 24-Hr. Comp. |
| Lead | Report | Report | lbs/day | Report | Report | mg/l | 3 X Monthly | 24-Hr. Comp. |
| Zinc | Report | Report | lbs/day | Report | Report | mg/l | 3 X Monthly | 24-Hr. Comp. |
| Mercury | 0.00000075 | 0.000002 | lbs/day | | 1.4 | 3.2 ng/l | Bi-Monthly | Grab |
| Total Residual Chlorine | 0.11 | 0.010 | lbs/day | 8 | 18 | ug/l | Daily | Grab |

Discharge Limitations
Outfall 017(Cont.)

| | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | 6.0 | 9.0 | s.u. | 1 X Weekly | Grab |

**Outfalls 018 and 019, Bubble Outfall 300**

Bubble Outfall 300 is no longer included in the permit. Individual Outfalls 018 and 019 will be limited individually.

**Outfall 018**

Table 5 in Attachment V (Reasonable Potential Tables) shows the reasonable potential to exceed water quality standards analysis as required in 327 IAC 5-2-11.5. Copper, Mercury and Total Residual Chlorine have the reasonable potential to exceed water quality standards and require water quality based effluent limitations be placed in the permit. The ammonia limitations were based upon a trigger level established in an earlier consent decree. Because there are no significant sources of ammonia, the trigger limits are removed, however, continued monitoring will be required. Monitoring Phenols (4AAP) and T. Cyanide were

established to determine if leaks or spills occurred in the system. The monitoring of Phenols (4AAP) and T. Cyanide are carried over from the previous permit for this same reason. Mass limitations are based upon a flow from Outfall 018 of 49.85 MGD

Discharge Limitations
Outfall 018

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 1 X Weekly | Grab |
| Ammonia (as N) | Report | Report | lbs/day | Report | Report | mg/l | 1 X Monthly | 24-Hr. Comp. |
| $CBOD_5$ | Report | Report | lbs/day | | Report | Report | mg/l | 3 X Monthly 24-Hr. Comp. |
| Total Cyanide | --- | Report | lbs/day | --- | Report | mg/l | 1 X Monthly | 3 Grabs/24-Hrs |
| Phenols (4AAP) | Report | Report | lbs/day | Report | Report | mg/l | 3 X Weekly | 24-Hr. Comp. |
| Copper | 5.0 | 11.2 | lbs/day | | 0.012 | 0.027 mg/l | | 10 X Monthly24-Hr. Comp. |
| Mercury | 0.0006 | 0.0013 | lbs/day | 1.4 | 3.2 | ng/l | Bi-Monthly | Grab |
| Temperature | --- | --- | --- | --- | Report | °F | Daily | Continuous |
| Thermal Discharge | --- | Report | BTU/Hr. | -- | --- | --- | Daily | Report |
| Total Residual Chlorine | 3.3 | 7.5 | lbs/day | 8 | 18 | ug/l | Daily | Grab |

Discharge Limitations
Outfall 018 (Cont.)

| | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | 6.0 | 9.0 | s.u. | 1 X Weekly | Grab |

## Outfall 019

Table 6 in Attachment V (Reasonable Potential Tables) shows the reasonable potential to exceed water quality standards analysis as required in 327 IAC 5-2-11.5. Mercury and Total Residual Chlorine have the reasonable potential to exceed water quality standards and require water quality based effluent limitations be placed in the permit. The ammonia limitations were based upon a trigger level established in an earlier consent decree. Because there are no significant sources of ammonia, the trigger limits are removed, however, continued monitoring will be required. Monitoring Phenols (4AAP) and T. Cyanide were established to determine if leaks or spills occurred in the system. The monitoring of Phenols (4AAP) and T. Cyanide are carried over from the previous permit for this same reason. Mass limitations are based upon a flow from Outfall 019 of 51.75 MGD.

Discharge Limitations
Outfall 019

| Parameter | Quantity or Loading Monthly Average | Daily Maximum | Units | Quality or Concentration Monthly Average | Daily Maximum | Units | Monitoring Requirements Measurement Frequency | Sample Type |
|---|---|---|---|---|---|---|---|---|
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 1 X Weekly | Grab |
| Temperature | --- | --- | --- | --- | Report | °F | Daily | Continuous |
| Thermal Discharge | --- | Report | BTU/Hr. | --- | --- | --- | Daily | Report |
| $CBOD_5$ | Report | Report | lbs/day | | Report | Report | | mg/l 3 X Monthly 24-Hr. Comp. |
| Total Cyanide | --- | Report | lbs/day | --- | Report | mg/l | 1 X Monthly | 3 Grabs/24-Hrs |
| Mercury | 0.0006 | 0.0014 | lbs/day | | 1.4 | 3.2 | ng/l | Bi-MonthlyGrab |
| Ammonia (as N) | Report | Report | lbs/day | Report | Report | mg/l | 1 X Monthly | 24-Hr. Comp. |
| Phenols (4AAP) | Report | Report | lbs/day | Report | Report | mg/l | 1 X Monthly | 24-Hr. Comp. |
| Total Residual Chlorine | 3.5 | 7.8 | lbs/day | 8 | 18 | ug/l | Daily | Grab |

| Parameter | Minimum Daily | Maximum Daily | Units | Measurement Frequency | Sample Type |
|---|---|---|---|---|---|
| pH | 6.0 | 9.0 | s.u. | 1 X Week | Grab |

## Outfall 020

Table 7 in Attachment V (Reasonable Potential Tables) shows the reasonable potential to exceed water quality standards analysis as required in 327 IAC 5-2-11.5. Lead, Mercury and Total Residual Chlorine have the reasonable potential to exceed water quality standards and require water quality based effluent limitations be placed in the permit. The monitoring of Zinc and Lead were placed in the permit to ensure that process discharges did not occur through Outfall 020. The monitoring of Lead and Zinc is carried over from the previous permit. Mass limitations are based upon a flow of 64.4 MGD.

Discharge Limitations
Outfall 020

| Parameter | Quantity or Loading Monthly Average | Daily Maximum | Units | Quality or Concentration Monthly Average | Daily Maximum | Units | Monitoring Requirements Measurement Frequency | Sample Type |
|---|---|---|---|---|---|---|---|---|
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 1 X Weekly | Grab |
| Lead | 5.9 | 16.1 | lbs/day | 0.011 | 0.03 | mg/l | 10 X Monthly | 24-Hr. Comp. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Zinc | Report | Report | lbs/day | Report | Report | mg/l | 1 X Weekly | 24-Hr. Comp. |
| $CBOD_5$ | Report | Report | lbs/day | | Report | Report | mg/l | 3 X Monthly 24-Hr. Comp. |
| Mercury | 0.00075 | 0.002 | lbs/day | | 1.4 | 3.2 ng/l | Bi-Monthly | Grab |
| Temperature | --- | --- | --- | --- | Report | °F | 1 X Monthly | 6 Grabs/24 Hrs. |
| Thermal Discharge | --- | Report | BTU/Hr. | -- | --- | --- | 1 X Weekly | Report |
| Total Residual Chlorine | 4.3 | 9.7 | lbs/day | | 8 | 18 ug/l | Daily | Grab |

| | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

**Outfalls 021, 023, and 026**

Outfall 021 consists of air compressor non-contact cooling water, steam condensate, and some storm water. Outfall 023 consists of intermittent flows of steam condensate, and air conditioning condensate from the hospital and other buildings, and some storm water.
Outfall 026 is currently inactive and no monitoring will be required as long as the outfall is inactive but monitoring requirements are established if it becomes active again. Monitoring from the previous permit consisted of Oil and Grease. TRC limits will apply to outfalls that contain water that has been treated by chlorine. Mass limitations for Outfall 021 are based upon a flow of 0.6 MGD.

**Outfall 021**

Discharge Limitations
Outfall 021

| | Quantity or Loading | | | Quality or Concentration | | Monitoring Requirements | | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | --- | Report | MGD | --- | --- | --- | Monthly | Estimate |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | Monthly | Grab |
| Total Residual Chlorine | 0.04 | 0.09 | lbs/day | 8 | 18 | ug/l | Daily | Grab |

| | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

**Outfall 023**

Discharge Limitations
Outfall 023

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | --- | Report | MGD | --- | --- | --- | Monthly | Estimate |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | Monthly | Grab |
| Total Residual Chlorine | 0.007 | 0.02 | lbs/day | 8 | 18 | ug/l | Daily | Grab |
| | | | | Minimum Daily | Maximum Daily | | | |
| pH | ---- | ------ | | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

Mass limitations for TRC at Outfall 023 are calculated based upon a flow of 0.1 MGD.

**Outfall 026**

Outfall 026 is currently inactive but covered under this permit. Monitoring requirements are established in case US Steel re-activates this outfall. US Steel shall notify IDEM at least 30 days prior to re-activation.

Discharge Limitations
Outfall 026 (Currently Inactive)

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring | Requirements |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | --- | Report | MGD | --- | --- | --- | 1 X Monthly | Estimate |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 1 X Monthly | Grab |
| Total Residual Chlorine | Report | Report | lbs/day | 8 | 18 | ug/l | Daily | Grab |
| | | | | Minimum Daily | Maximum Daily | | | |
| pH | ---- | ------ | | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

**Outfalls 028/Outfall 030, Bubble Outfall 600**

Table 8 in Attachment V (Reasonable Potential Tables) shows the reasonable potential to exceed analysis as required in 327 IAC 5-2-11.5. Mercury, Fluoride and Total Residual Chlorine have the reasonable potential to exceed and require water quality based effluent limitations be placed in the permit. Mass limitations are calculated based upon a flow through Outfall 028/030 of 31.9 MGD.

**Outfalls 028/030**

Discharge Limitations
Outfall 028/030 (600)

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| Total Suspended Solids | 2,038 | 5,933 | lbs/day | Report | Report | mg/l | 5 X Weekly | 24-Hr. Comp. |
| Oil & Grease * | 123 | 687 | lbs/day | Report | Report | mg/l | 5 X Weekly | 2 Grabs/ 24-Hrs. |
| $CBOD_5$ | Report | Report | lbs/day | | Report | Report | mg/l | 3 X Monthly24-Hr. Comp. |
| Lead | 6.34 | 14.73 | lbs/day | Report | Report | mg/l | 10 X Monthly | 24-Hr. Comp. |
| Zinc | Report | Report | lbs/day | Report | Report | mg/l | 10 X Monthly | 24-Hr. Comp. |
| Mercury | 0.0004 | 0.0009 | lbs/day | | 1.4 | 3.2 ng/l | Bi-Monthly | Grab |
| Total Residual Chlorine | 2.1 | 4.8 | lbs/day | | 8.0 | 18.0 ug/l | Daily | Grab |
| Fluoride | 1571 | 3647 | lbs/day | | 5.9 | 13.7 mg/l | 10 X Monthly | 24-Hr. Comp. |
| Temperature | --- | --- | --- | --- | Report | °F | Monthly | 6 Grabs/24-Hrs. |
| Thermal Discharge | --- | Report | BTU/Hr | --- | --- | --- | Weekly | Report |

| | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

* ***Does not include Oil and Grease bubble from previous permit.***

**Internal Outfall 603 discharging via Outfall 030**

Internal Outfall 603 is regulated by the federal effluent guidelines for discharges from steelmaking, continuous casting and vacuum degassing operations.

Discharge Limitations
Internal Outfall 603

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Total Lead | 8.7 | 26.1 | lbs/day | Report | | Report | mg/l | 10 X Monthly | 24-Hr. Comp. |
| Total Zinc | 13.1 | 37.5 | lbs/day | Report | | Report | mg/l | 10 X Monthly | 24-Hr. Comp. |

| | | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

## Outfall 032

Outfall 032 consists of miscellaneous QA non-contact cooling water, miscellaneous bar mill freeze protection water, steam condensate, and some storm water. Monitoring for Oil and Grease and limitations for TRC and pH are carried over from the previous permit. Mass limitations calculated were based upon a flow of 0.3 MGD.

Discharge Limitations
Outfall 032

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| | Monthly | Daily | | Monthly | Daily | | Measurement | Sample |
| Parameter | Average | Maximum | Units | Average | Maximum | Units | Frequency | Type |
| Flow | --- | Report | MGD | --- | --- | --- | 1 X Monthly | Estimate |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 1 X Monthly | Grab |
| Total Residual Chlorine | 0.02 | 0.045 | lbs/day | | 8 | 18 | ug/l | Daily Grab |

| | | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

## Outfall 033

Outfall 033 consists of discharges of non-contact cooling water from the sheet & tin mill, atmospheric gas plant non-contact cooling water, Buchanan Street sanitary lift station emergency overflow (SOF-1), EJ&E miscellaneous intermittent flows, steam condensate, and some storm water. Monitoring for Phenols (4AAP) and Oil & Grease are required to ensure that possible leaks of process waters from the tin lines are detected. Reasonable potential for TRC exists because of chlorine added at the intake structures for zebra mussel control, and mass limitations based upon a flow of 0.2 MGD.

Discharge Limitations
Outfall 033

| Parameter | Quantity or Loading Monthly Average | Daily Maximum | Units | Quality or Concentration Monthly Average | Daily Maximum | Units | Monitoring Requirements Measurement Frequency | Sample Type |
|---|---|---|---|---|---|---|---|---|
| Flow | --- | Report | MGD | --- | --- | --- | 1 X Monthly | Estimate |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 1 X Monthly | Grab |
| Phenols (4AAP) | --- | Report | lbs/day | --- | Report | mg/l | 1 X Monthly | Grab |
| Total Residual Chlorine | 0.01 | 0.03 | lbs/day | 8 | 18 | ug/l | Daily | Grab |
| | | | | Minimum Daily | Maximum Daily | | | |
| pH | ---- | ------ | | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

**Outfall 034**

Outfall 034 consists of discharges from the process lines that are monitored and regulated by internal Outfalls 604, 605, and 606. Mass limitations calculated from water quality based effluent concentration values were based upon a flow of 28.5 MGD. The previous permit contained both water quality and federal effluent guideline limitations at Outfall 034. Outfall 034 is the discharge of the combined discharges of Internal Outfalls 604, 605, and 606 through the Oil & Water Separator at the point. This permit moves back to the internal outfalls much of the federal effluent guideline limitations except for Oil & Grease which is regulated at Outfall 034. Other limitations that are based upon water quality standards are retained at Outfall 034.

**$CBOD_5$**

The previous permit only included mass limitations for $CBOD_5$ at Outfall 034. Limitations that are based upon water quality must include both concentration and mass limits in the Great Lakes. The concentration values were derived by taking the current mass limitations and the flow used for mass calculations for this Outfall (28.5 MGD) and derived the monthly average (5.6 mg/l) and daily maximum (11.2 mg/l) values.

**Mercury, Benzo(a)anthracene, Total Residual Chlorine (TRC)**

Water quality based effluent limitations were developed using 327 IAC 5-2-11.4 and reasonable potential determinations using 327 IAC 5-2-11.5. Water quality based effluent limits are shown for parameters of concern in the reasonable potential to exceed in Table 9 Attachment V. Corresponding mass limitations are based upon a flow of 28.5 MGD.

**Lead, Phenols (4AAP)**

The limitations for these parameters are carried over from the previous permit.

Effluent limitations at Outfall 034 are detailed below:

Discharge Limitations
Outfall 034

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| $CBOD_5$ | | | | | | | | |
| Summer | 1,334 | 2,669 | lbs/day | | 5.6 | 11.2 mg/l | | 10 X Monthly 24-Hr. Comp. |
| Winter | 4,537 | 9,074 | lbs/day | 19.12 | 38.24 | mg/l | 10 X Monthly | 24-Hr. Comp. |
| Oil & Grease | 1,515 | 5,171 | lbs/day | Report | Report | mg/l | 5 X Weekly | 2 Grabs/24-Hrs. |
| Ammonia (as N) | Report | Report | lbs/day | Report | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |
| Lead | 2.52 | 5.85 | lbs/day | Report | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |
| Mercury | 0.0003 | 0.0008 | lbs/day | 1.4 | 3.2 | ng/l | Bi-Monthly | Grab |
| Benzo(a)anthracene | 0.02 | 0.03 | lbs/day | 0.06 | 0.14 | ug/l | 10 X Monthly | 24-Hr. Comp. |
| Phenols (4AAP) | 26.00 | 39.00 | lbs/day | Report | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |
| Total Residual Chlorine | 1.9 | 4.3 | lbs/day | 8 | 18 | ug/l | 10 X Monthly | 2 Grabs/24-Hrs. |
| Dissolved Oxygen | | | Daily minimum of 5.0 mg/l | | | | | |
| Temperature | ------ | --- | --- | --- | Report | °F | 1 X Monthly | 2 Grabs/24-Hrs. |
| Thermal Discharge | ------ | Report | BTU/Hr | --- | --- | --- | 1 X Monthly | Report |
| Whole Effluent Toxicity | | See Part I.L., Biomonitoring Requirements | | | | | | |
| | | | | Minimum Daily | Maximum Daily | | | |
| pH | ---- | ------ | | 6.0 | 9.0 | s.u. | [See Permit] | Grab |

## Internal Outfall 604 via Outfall 034

Internal Outfall 604 consists of process water from the No. 1 Tin-free Steel line, the No. 5 & 6 Electrolytic Tinning Lines, East Galvanizing Lines, the chrome reduction floor drains, and the spent chrome solutions from the tinning and galvanizing lines. Internal Outfall 604 is limited by the federal effluent guidelines and based on the production values provided have the following limitations. Federal Effluent Limitations were based upon 40 CFR 420 and 40 CFR 433. Most of the additional parameters below are from the requirements in the Metal Finishing Category. EPA requires that all applicable parameters are included in at least one permitting cycle.

Discharge Limitations
Outfall 604

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| Total Suspended Solids | 3,353 | 7,474 | lbs/day | Report | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Oil & Grease | Report | Report | lbs/day | Report | Report | mg/l | 5 X Weekly | 2 Grabs/24-Hrs. |
| Total Recoverable Chromium | 48.5 | 78.5 | lbs/day | Report | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |
| Zinc | 34.98 | 74.68 | lbs/day | Report | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |
| Lead | Report | Report | lbs/day | Report | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |
| T. Cyanide | 18.4 | 34.0 | lbs/day | Report | Report | mg/l | 1 X Quarter | 24-Hr. Comp. |
| Cadmium | 7.4 | 19.6 | lbs/day | Report | Report | mg/l | 1 X Quarter | 24-Hr. Comp. |
| Hexavalent Chromium | 0.16 | 0.46 | lbs/day | Report | Report | mg/l | 1 X Quarter | 24-Hr. Comp. |
| Nickel | 67.5 | 112.9 | lbs/day | Report | Report | mg/l | 1 X Quarter | 24-Hr. Comp. |
| Silver | 6.8 | 12.2 | lbs/day | Report | Report | mg/l | 1 X Quarter | 24-Hr. Comp. |
| TTO | ------ | 60.4 | lbs/day | ------ | ------ | ------ | 1 X Month | 24-Hr. Comp. |
| Naphthalene | ------ | 1.7 | lbs/day | ------ | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |
| Tetrachloro-ethylene | ------ | 2.5 | lbs/day | ----- | Report | mg/l | 2 X Weekly | 2 Grabs/24-Hrs. |
| Phenols(4AAP) | Report | Report | lbs/day | Report | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |
| Chlorides | Report | Report | lbs/day | Report | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |

## Internal Outfall 605 via Outfall 034

Internal Outfall 605 limits discharges from the 84" hot strip mill and were based upon the limitations contained in the previous US Steel Gary Works permit which were more stringent than the mass limitations allocated by the federal effluent limitation guidelines. These were carried over from the then previous permit to the currently administered extended permit because they were more stringent. These same limitations will be carried over to the current permit for the same reasons.

Discharge Limitations
Outfall 605

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| Total Suspended Solids | 725 | 2,175 | lbs/day | Report | Report | mg/l | 2X Weekly | 24-Hr. Comp. |
| Oil & Grease | --- | 1,450 | lbs/day | --- | Report | mg/l | 5X Weekly | 2 Grabs/24-Hrs. |

## Internal Outfall 606 via Outfall 034

Internal Outfall 606 was established as part of a proposed special condition required US Steel to conduct routine monitoring of the 84" x 91 " sewer and initiate corrective actions whenever discharges of process materials or process wastewaters were noted. The discharge from the 84" x 91" sewer is regulated by the end-of-pipe effluent limitations applicable to Outfall 034. The purpose of the monitoring and special condition is to provide a mechanism for early detection of possible spills or

leaks. These monitoring requirements are carried over from the previous permit.

Discharge Limitations
Outfall 606

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | 24-Hr. Total |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 5 X Weekly | Grab |
| Total Chromium | --- | --- | --- | --- | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |
| Total Zinc | --- | --- | --- | --- | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |
| Total Lead | --- | --- | --- | --- | Report | mg/l | 2 X Weekly | 24-Hr. Comp. |
| Phenols (4AAP) | --- | --- | --- | --- | Report | mg/l | 1 X Weekly | 24-Hr. Comp. |
| pH | Between 6.0 and 9.0 Units | | | | | | Continuous | |

## Outfall 035

Outfall 035 consists of once through non-contact cooling water discharged from the No. 5 Power Generating Station, the Lakeside Energy Co-Generation Plant non-contact cooling water, intermittent amounts of steam condensate and some storm water. Water Quality Based Effluent Limitations for Total Residual Chlorine are established based upon the reasonable potential to exceed analysis as required in 327 IAC 5-2-11.5 and are shown in Table 10 in Attachment V. Mass calculations developed based upon a water quality effluent concentration value used a flow of 176.3 MGD. The previous permit including limitations for ammonia which are not being carried over to this permit. A reasonable potential calculation determined no reasonable potential exists and there is not a know source for this parameter except intake water which is Lake Michigan water.

Discharge Limitations
Outfall 035

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 1 X Weekly | Grab |
| Temperature | --- | --- | -- | --- | --- | $^0$F | Daily | Continuous |
| Thermal Discharge | See Part III of the permit for Effluent Limitations | | | | | | Daily | Continuous |
| Total Residual Chlorine | 11.8 | 26.48 | lbs/day | 8 | 18 | ug/l | Daily | Grab |
| | | | | Minimum Daily | Maximum Daily | | | |
| pH | ---- | ------ | | 6.0 | 9.0 | s.u. | 1 X Weekly | Grab |

**Outfalls 036**

Outfall 036 consist of non-contact cooling water from the 160"/210" Plate Mill, an intermittent amount of steam condensate, and some storm water. Monitoring for Oil and Grease is continued from the previous permit. Monitoring for Oil and Grease was established on a BPJ basis to ensure that possible discharges of oil are detected and corrected. Water Quality Based Effluent Limitations for Total Residual Chlorine are established based upon the reasonable potential to exceed analysis as required in 327 IAC 5-2-11.5 and are shown in Table 11 in Attachment V. Mass calculations developed based upon a water quality effluent concentration value used a flow of 27.0 MGD.

Discharge Limitations
Outfall 036

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | --- | Report | MGD | --- | --- | --- | Daily | Continuous |
| Temperature | --- | --- | --- | --- | Report | °F | Daily | Continuous |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 1 X Weekly | Grab |
| Total Residual Chlorine | 1.8 | 4.1 | lbs/day | 8 | 1 8 | ug/l | Daily | Grab |
| | | | | Minimum Daily | Maximum Daily | | | |
| pH | ---- | ------ | | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

**Outfall 037**

The discharge from Outfall 037 consists of non-contact cooling water from the sheet and tin mill areas. Monitoring of Oil and Grease, Zinc, and Phenols (4AAP) are carried over from the previous permit. Monitoring was established on a BPJ basis in the last permit to ensure that possible leaks of process materials or discharges of process wastewaters are detected and corrected. Water Quality Based Effluent Limitations for Total Residual Chlorine are established based upon the reasonable potential to exceed analysis as required in 327 IAC 5-2-11.5 and are shown in Table 12 in Attachment V. Mass calculations developed based upon a water quality effluent concentration value used a flow of 3.0 MGD.

Discharge Limitations
Outfall 037

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | Report | Report | MGD | --- | --- | --- | Daily | Continuous |
| Temperature | --- | --- | --- | --- | Report | °F | Daily | Continuous |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 1 X Weekly | Grab |
| Zinc | --- | Report | lbs/day | --- | Report | mg/l | 1 X Weekly | 24-Hr. Comp |
| Phenols (4AAP) | --- | Report | lbs/day | --- | Report | mg/l | 1 X Weekly | 24-Hr. Comp |
| Total Residual Chlorine | 0.2 | 0.45 | lbs/day | 8 | 18 | ug/l | Daily | Grab |
| | | | | Minimum Daily | Maximum Daily | | | |
| pH | ---- | ------ | | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

## Outfall 039

Outfall 039 consists of the 84" Hot strip Mill Reheat Furnace non-contact cooling water, the 84 " Hot Strip Mill miscellaneous non-contact cooling water, the 84" hot strip mill fire water distribution system, come intermittent amounts of steam condensate and cold well pump room flood protection water, the 84" Hot Strip Mill Roughing Mill Scale Pit Emergency Overflow, and some storm water. Water Quality Based Effluent Limitations for Total Residual Chlorine are established based upon the reasonable potential to exceed analysis as required in 327 IAC 5-2-11.5 and are shown in Table 13 in Attachment V. Mass calculations developed based upon a water quality effluent concentration value used a flow of 55.0 MGD.

Discharge Limitations
Outfall 039

| | Quantity or Loading | | | Quality or Concentration | | | Monitoring Requirements | |
|---|---|---|---|---|---|---|---|---|
| Parameter | Monthly Average | Daily Maximum | Units | Monthly Average | Daily Maximum | Units | Measurement Frequency | Sample Type |
| Flow | --- | Report | MGD | --- | --- | --- | Daily | Continuous |
| Temperature | --- | --- | --- | --- | Report | °F | Daily | Continuous |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | 1 X Weekly | Grab |
| Total Residual Chlorine | 3.7 | 8.3 | lbs/day | 8 | 18 | ug/l | Daily | Grab |
| | | | | Minimum Daily | Maximum Daily | | | |
| pH | ---- | ------ | | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

## Outfall 040

Outfall 040 discharges non-contact cooling water from the No. 1 Electro-galvanizing line, filter backwash, steam condensate, boiler blowdown, and storm water to Stockton Pond. Table 14 in Attachment V (Reasonable Potential Tables) shows the reasonable potential to exceed analysis as required in 327 IAC 5-2-11.5. The parameters Copper, Chromium (III), Lead, Nickel, Zinc, Total Residual Chlorine, Chloride and Ammonia - N have reasonable potential to exceed water quality standards and require water quality based effluent limitations to be placed in the permit for discharges from Outfall 040 to Stockton Pond. Mass calculations are based upon a flow to Stockton Pond of 0.2 MGD.

Discharge Limitations
Outfall 040

| | Quantity or Loading | | | Quality or Concentration | | Monitoring Requirements | | |
|---|---|---|---|---|---|---|---|---|
| | Monthly | Daily | | Monthly | Daily | | Measurement | Sample |
| Parameter | Average | Maximum | Units | Average | Maximum | Units | Frequency | Type |
| Flow | --- | Report | MGD | --- | --- | --- | Monthly | Estimate |
| Temperature | --- | --- | --- | --- | Report | °F | Monthly | Grab |
| Oil & Grease | --- | --- | --- | --- | Report | mg/l | Monthly | Grab |
| Zinc | 0.12 | 0.3 | lbs/day | 0.073 | 0.17 | mg/l | 10 X Monthly | 24-Hr. Comp |
| Copper | 0.015 | 0.035 | lbs/day | 0.009 | 0.021 | mg/l | 10 X Monthly | 24-Hr. Comp |
| Chromium (III) | 0.14 | 0.33 | lbs/day | 0.085 | 0.2 | mg/l | 10 X Monthly | 24-Hr. Comp |
| Lead | 0.01 | 0.03 | lbs/day | 0.008 | 0.018 | mg/l | 10 X Monthly | 24-Hr. Comp |
| Nickel | 0.08 | 0.2 | lbs/day | 0.05 | 0.12 | mg/l | 10 X Monthly | 24-Hr. Comp |
| Total Residual Chlorine | 0.01 | 0.03 | lbs/day | | 8 | 18 | ug/l | Daily Grab |
| Chloride | 267 | 621 | lbs/day | 160 | 372 | mg/l | 10 X Monthly | 24-Hr. Comp |
| Ammonia-N | | | | | | | | |
| Summer | 0.6 | 1.4 | lbs/day | 0.35 | 0.81 | mg/l | 10 X Monthly | 24-Hr. Comp |
| Winter | 0.25 | 0.6 | lbs/day | 0.15 | 0.35 | mg/l | 10 X Monthly | 24-Hr. Comp |
| | | | 6-9 | | | s.u. | | |

Discharge Limitations
Outfall 040(Cont.)

| | | | Minimum Daily | Maximum Daily | | | |
|---|---|---|---|---|---|---|---|
| pH | ---- | ------ | 6.0 | 9.0 | s.u. | 1 X Monthly | Grab |

## Water Intake Screen Backwash - Outfalls BW-1, BW-2, BW-3, BW-4, and BW-5

US Steel has five service water intake structures operating off of Lake Michigan. The Pump Screen Backwash from these facilities discharge to Lake Michigan and are designated as BW-1 BW-2, BW-3, BW-4, and BW-5. A sixth (BW-6) has been closed. The permit will include conditions covering the five active water intake screen backwash facilities.

Discharge Limitations

| Parameter | Quantity or Loading Monthly Average | Quantity or Loading Daily Maximum | Units | Quality or Concentration Monthly Average | Quality or Concentration Daily Maximum | Units | Monitoring Requirements Measurement Frequency | Monitoring Requirements Sample Type |
|---|---|---|---|---|---|---|---|---|
| Flow | --- | Report | MGD | --- | --- | --- | Quarterly | Estimate |

5. **Special NPDES Permit Conditions and Monitoring Programs**

The previous permit contained a number of special conditions and monitoring programs in addition to the interim and final effluent limitations and routine monitoring requirements. Reference is made to the permit for the specific requirements of each program.

**Storm Water Requirements**

The Gary Works permit issued in 1994 included provisions for US Steel to prepare a Storm Water Pollution Prevention Plan (SWPPP) at the Gary Works Facility. The original SWPPP was finalized in 1996 and revised in April 1997. US Steel has also implemented a separate SWPPP for the Coke Plant. The SWPPP for the Coke Plant Operations is consistent with the Gary Works SWPPP. The Coke Plant SWPPP was revised in April 1997 and September 1999. US Steel as part of their overall SWPPP development took into account the General Permit for Storm Water Discharges Associated with Industrial Activity from Primary Metals Facilities. This EPA general permit applies to states in which EPA administers the NPDES Permit Program. The SWPPP requirement IDEM placed in the permit governs the requirements in the SWPPP for Gary Works, the requirements of the general EPA Permit were taken into account in developing the SWPPP.

The previous permit also included a BMP requirement for runoff control at the coal processing area. This BMP has been developed and implemented and is part of the Coke Plant SWPPP.

Based upon a review of the SWPPP's submitted for the Gary Works Facility, US Steel should continue the implementation of the SWPPP's currently in force and modify and implement additional BMP's as needed. This includes the BMP for Runoff Control at the Coal Processing Area currently implemented at the Gary Works Facility. The BMP Runoff Control at the Coal Processing Area covered Outfall(s) 001, 003, and 004. Outfall(s) 001 and 003 have been eliminated. The related stormwater runoff was re-routed to the Outfall 004 system which currently does not discharge.

A review of the current requirements for storm water monitoring is on a once a year or annual basis. Part I. J. of the permit details the specific parameters and outfalls where these sampling

and monitoring requirements are to be implemented.

**Reporting Requirements for Solvents, Degreasing Agents, Rolling Oils, Water Treatment Chemicals and Biocides (Water Treatment Additive Approvals and Requirements)**

US Steel has on an annual basis reported the total quantity (lbs/year) of each solvent, degreasing agent, water treatment chemical, rolling oil and biocide that was purchased for that year. This requirement will continue as in the previous permit.

**Whole Effluent Toxicity Requirements**

The reasonable potential process was applied to the Gary Works Outfalls and the results are shown in Table 15 of Appendix V. IDEM used its reasonable potential procedures outlined in 5-2-11.5(c)(2) and 5-2-11.5(c)(3). EPA did not approve 5-2-11.5(c)(1), so IDEM is required to apply Paragraphs C.1 and D of Procedure 6 in Appendix F of 40 CRF Part 132 with one exception. The reasonable potential equation was rearranged so that it is similar to the equation that IDEM uses for other pollutants and pollutant parameters. Based upon the reasonable analysis completed the permit contains Chronic WET toxicity limitations ($Tu_c$) at Outfall(s) 005 and 034. Limitations for chronic WET are noted in the Part I.L, Biomonitoring Requirements. A three year compliance schedule to meet the limitations for WET are included in the permit. Additional WET requirements are included for Outfalls 005, 010, 028/030, and 034.

**Compliance Schedule**

Several parameters have been added to the various outfalls due to reasonable potential to exceed water quality standard. In general, a three year schedule of compliance has been incorporated into the permit to allow the facility to meet the new permit requirements. An interim limit or reporting requirement has been established in the permit for each parameter with a compliance schedule. A four or five year schedule may be warranted if the facility submits a site specific study and workplan.

Then effluent limitation for benzo(a)pyrene will receive up to a three year schedule of compliance in this permit. Since the previous permit allowed US Steel to submit studies to revise the BAF factor for benzo(a)pyrene. The final determination letter related to this study was sent to US Steel on November 27, 2002. Because of this ongoing review and final determination on the BAF, US Steel was not capable of designing a treatment system to meet a final limitation that was still being determined. This permit will allow US Steel up to three years to meet the final effluent limitation for benzo(a)pyrene.

The Mercury effluent limitation has a five year schedule of compliance.

**Visible Oil Corrective Action Monitoring Program**

This was implemented as part of a Consent Decree through US EPA. Even though the consent decree is no longer in effect, the monitoring program still provides a useful purpose and this requirement is being carried over to the current permit.

**Water Treatment Additives**

**US Steel has submitted water treatment additives from several vendors for review. US Steel has submitted water treatment additive information by email on November 18, 2002, with hard copies sent by mail. Review has been completed with the additives approved for use so far listed in the permit. Comments were sent to US Steel on March 28, 2003 requesting additional information for some of the additives. As additives are approved they will be placed into the permit prior to Public Notice of the Final Permit. Additives not in the final permit may require permit modification to include approval.**

**Thermal Effluent Requirements**

US Steel has major non-contact discharges to both the Grand Calumet River and Lake Michigan. Temperature requirements related to direct discharges to the Grand Calumet River are found in 327 IAC 2-1.5-6(c)(4) and direct discharges to Lake Michigan are covered by 327 IAC 2-1.5-6(c)(4)(D). Compliance with temperature effluent limitations can be determined in two ways. The temperature limitations can either be met at the end of the pipe prior to discharge (discharges to stream segments without dilution) or can account for the mixing zone allowed by 327 IAC 2-1.58(c). A mixed river temperature calculation is included in the permit for this purpose. An example of this calculation is provided in the permit. The previous permit had US Steel monitoring temperature at two downstream bridge locations and limits were applied at these locations. An updating of the temperature requirements in this permit will require the limitations to be met at Outfall 005 prior to discharge (this is the first outfall and in essence the beginning of the Grand Calumet River) and for the other limited outfalls at the edge of the mixing zone.

The limited outfalls that directly discharge to Lake Michigan will have effluent limits based upon requirements and temperature limitations established in 327 IAC 2-1.5-6(c)(4)(D).

In addition, most of the significant non-contact cooling discharges will be required to monitor on a continuous basis. Because of the change in the location that US Steel has to meet

temperature limitations and the application of continuous temperature monitoring, a three year schedule of compliance has been included in the permit.

Drafted by Stan Rigney (June 2003)